

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

ITEM NO. 6

TECHNICAL REPORT

FOR

**TENTATIVE ORDER NO. R9-2005-0230
WASTE DISCHARGE REQUIREMENTS AND
SECTION 401 WATER QUALITY CERTIFICATION, BENTLEY-
MONARCH J.V. / BENTEQ, CANTARINI RANCH AND HOLLY SPRINGS
PROJECTS, CARLSBAD, SAN DIEGO COUNTY**

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TENTATIVE ORDER NO. R9-2005-0230 WASTE DISCHARGE REQUIREMENTS AND SECTION 401 WATER QUALITY CERTIFICATION, BENTLEY-MONARCH J.V. / BENTEQ, CANTARINI RANCH AND HOLLY SPRINGS PROJECTS, CARLSBAD, SAN DIEGO COUNTY

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I. SUMMARY

The Regional Board is to considering adoption of Order No. R9-2005-0230, establishing waste discharge requirements for the discharge of fill material to waters of the State by Bentley-Monarch / Benteq (herinafter Discharger) as part of the Cantarini Ranch and Holly Springs project in the City of Carlsbad. Order No. R9-2005-0230 also establishes the necessary conditions on the project for the Regional Board to certify, pursuant to Section 401 of the Clean Water Act, that there is reasonable assurance the Cantarini Ranch and Holly Springs project in will not reduce water quality below applicable State water quality standards.

The discharge of fill to waters of the State will cause and threaten to cause conditions of pollution and nuisance and loss of beneficial uses. Preventative and compensatory mitigation measures have been proposed, including plans for habitat mitigation, compliance with the statewide NPDES requirements for construction stormwater discharges, and post-construction storm water management. Order No. R9-2005-0230 includes requirements to implement these measures and to report on construction and habitat mitigation progress.

II. BACKGROUND

Section 13260(a) of the California Water Code (Water Code) requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the waters of the State, file a report of waste discharge (ROWD). The discharge of dredged or fill material may constitute a discharge of waste that could affect the quality of waters of the State. Water Code section 13263(a) requires that waste discharge requirements (WDRs) be prescribed as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge. Such WDRs must implement any relevant water quality control plans, taking into consideration beneficial uses to

be protected, the water quality objectives reasonably required for those purposes, other waste discharges, the need to prevent nuisance, and the provisions of section 13241 of the Water Code.

The State of California largely relies on Section 401 of the federal Clean Water Act (CWA) (33 U.S.C. § 1341) to regulate discharges of dredged or fill material to waters of the State. That section requires an applicant to obtain “water quality certification” from California that the project will comply with State water quality standards before certain federal licenses or permits may be issued. The permits subject to section 401 include permits for the discharge of dredged or fill materials (CWA section 404 permits) issued by the U.S. Army Corps of Engineers (USACE). Given the regulatory process employed under section 401, waste discharge requirements under the Porter-Cologne Water Quality Control Act are typically waived for projects that required certification¹. In recent years the USACE has increasingly determined that discharges of fill to some surface waters are not subject to CWA section 404 permits. As a result, the WDR waivers associated with discharges of fill subject section 401 certifications do not apply to discharges of fill to surface waters deemed outside of federal jurisdiction.

To streamline the issuance of WDRs for projects that propose to place small amounts of fill into non-federal waters, the State Board issued Order No. 2004-0004-DWQ, “*Statewide General Waste Discharge Requirements for Dredge and Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction.*” Pursuant to CWC section 13263(a) the Regional Boards must prescribe waste discharge requirements for proposed discharges of fill to non-federal waters that exceed the thresholds in Order No. 2004-0004-DWQ.

On July 25, 2003 the Discharger submitted an application for 401 Water Quality Certification seeking authorization to place fill material into waters of the U.S./State during development of the adjacent Cantarini Ranch and Holly Springs properties. Subsequent to that application, the U.S. Army Corps of Engineers determined that certain watercourses on the site did not fall under Federal jurisdiction. In response, the Discharger submitted a revised application for 401 Water Quality Certification for discharges to waters of the U.S. and also an Application/Report of Waste Discharge (ROWD) for discharges of fill to non-federal waters of the State on May 18, 2005. An ROWD was submitted to the Regional Board pursuant to California Water Code Section 13260 because the proposed amount of fill into non-federal waters of the State exceeds the numeric thresholds limit of State Water Resources Control Board Order No. 2004-0004-DWQ. As a result, Order No. R9-2005-0230 serves as both section 401 Water Quality Certification and as waste discharge requirements for discharges of fill to waters of the State.

III. PROJECT DESCRIPTION

The proposed project would develop residential housing and associated infrastructure on the adjacent Cantarini Ranch and Holly Springs properties within the northeast portion of the City of Carlsbad (Figure 1). A single Order for waste discharge requirements and water quality certification are proposed for the two sites because the two projects were evaluated as a single project under the California Environmental Quality Act (CEQA). A final Environmental Impact

¹ The discharge associated with a Section 401 water quality certification is regulated under California Regional Water Quality Control Board, San Diego Region, Waiver of Waste Discharge Requirements (Waiver Policy) No. 17.

Report (EIR) for the two developments was approved by the City of Carlsbad on December 7, 2004 (SCH 2002101081). In January 2005 the projects were subjected to a CEQA lawsuit, which was subsequently settled and dismissed in June 2005. As a result of the settlement, additional mitigation measures will be implemented, including the presence of a biological monitor on site during construction activities and restricted locations for horse trails.

The Cantarini Ranch/Holly Springs project proposes to develop residential housing and associated infrastructure on approximately 276 acres in the City of Carlsbad (Figure 2). The sites currently contain mostly agricultural lands, non-native grasslands, and coastal sage scrub. The Cantarini Ranch portion proposes the development of approximately 157 acres. Development proposed includes an 80 unit multiple-family housing project and 105 single-family units consisting of one- to three-story homes on lots of 0.5-acre and larger. Residential and roadway uses would approximate 97 acres. Two remainder parcels, each 0.5-acre in size, are not proposed for development at this time. The remainder of the tentative map, approximately 59 acres, would be placed under a conservation easement as permanent open space that would connect with the planned open space of Holly Springs to the north.

The Holly Springs portion would create 43 single-family residential units on a minimum of 0.5-acre lots over approximately 40 acres of the approximately 120-acre site. Approximately 60 acres of the site would be placed under a conservation easement as permanent open space. Holly Springs open space lots would connect with areas to the north and south of the site that are planned for open space in accordance with the City's Habitat Management Plan.

The Discharger proposes to place fill material in a total of 2.22 acres of federal waters of the State and 0.17 acres of non-federal waters of the State in order to construct the Cantarini Ranch and Holly Springs developments (project). The majority of the project's placement of fill into wetlands will support creek crossings necessary for access to the property. The crossings have been designed to allow wildlife passage² and will incorporate soft-bottom culverts. Additional proposed fill would be placed into unvegetated channels during the grading of housing pads. Some fill will also be placed during the process to remove two dams along the central north-south drainage on Cantarini Ranch in order to restore wetland habitats endemic to the site.

As conditioned by the City of Carlsbad, the Discharger will also build portions of another project subject to a previously approved Environmental Impact Report³. That project, the *Calavera Hills Master Plan Phase II, Bridge, and Thoroughfare District No. 4 and Detention Basins* was previously granted waste discharge requirements to the City of Carlsbad and Calavera Hills, LLC (Regional Board Order No. R9-2002-0014 and 401 file no. 00C-135). That project is adjacent to the westerly border of the Cantarini Ranch parcel. Specifically, the Discharger will construct the extension of College Boulevard between El Camino Real and Cannon Road (Reach A), a bridge over Agua Hedionda Creek, and a detention basin "BJ" that is to be located near the intersection of College Boulevard and Cannon Road. Per the City's conditions of approval, the Discharger

² The California Department of Fish and Game considers an "openness factor" greater than 0.6 to be sufficient for wildlife passage. Openness is calculated from height, width, and length dimensions of the undercrossing (H*W/L).

³ Final EIR, November 2001. Calavera Hills Master Plan Phase II, Bridge and Thoroughfare District No. 4, & Detention Basins. SCH no. 99111082.

will also be responsible for implementing the monitoring and reporting requirements associated with that portion of the project.

IV. WATER QUALITY STANDARDS AND MITIGATION MEASURES

Section 303 of the federal Clean Water Act (33 U.S.C. §1313) defines the term water quality standards as both the uses of the surface waters and the water quality criteria which are applied to protect those uses. A water quality standard defines the water quality goals for a water body by designating the use or uses to be made of the water body, by setting criteria to protect the uses, and by protecting water quality through antidegradation provisions. Under the Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Chapter 2 §13050), these concepts are defined separately as beneficial uses and water quality objectives. Beneficial uses and water quality objectives are required to be established for all waters of the State, both surface and ground waters.

The project area is tributary to Agua Hedionda Creek within the Los Monos Hydrologic Subarea (HSA 904.31). Designated beneficial uses of waters in the project area include Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Contact Water Recreation (REC 1), Non-contact Water Recreation (REC 2), Warm Freshwater Habitat (WARM), and Wildlife Habitat (WILD). Agua Hedionda Creek within HSA 904.31 is on the Clean Water Act Section 303(d) list of impaired waterbody segments for total dissolved solids, and the lagoon at the creek mouth is impaired for bacteria indicators and sediment.

The discharge of fill to waters of the State is proposed in portions of five waterbody segments in order to provide suitable areas for housing and roads (Figure 3). During project design, the Discharger made an appropriate effort to avoid the discharge of fill into waters of the State by limiting most of the development footprint to upland areas. The Discharger took additional steps to minimize the effect of the proposed fill by such measures as designing bridges rather than culverts and by incorporating site design features to reduce the size necessary of in-stream energy dissipation structures. Finally, mitigation measures have been proposed to compensate for the effects of the proposed discharge of fill to waters of the State.

The discharge of fill will eliminate beneficial uses in areas where fill will support housing and roads because that portion of the waterbody will cease to exist. Additionally, water quality downstream of the filled-in channel bed can be expected to decrease because of the direct loss of pollutant assimilative capacity and infiltration and potential changes in water quality characteristics associated with that portion of the drainage network being placed into subterranean pipes. In locations where the discharge of fill will serve as energy dissipation, WARM and WILD beneficial uses may be degraded because riprap does not typically provide the same quality of habitat for vegetation and wildlife as does a natural stream channel bed. A functional analysis of the drainage areas to be filled concluded that those areas currently rate low to medium for most evaluation criteria⁴.

⁴ *Mitigation and Wetland Functional Analysis for Jurisdictional impacts on the Cantarini Ranch and Holly Springs Properties*, Recon, August 15, 2005

The EIR concluded that cumulative development projects in the area have the potential to increase the amount of erosion due to alteration of drainage patterns and increased amounts of impervious surfaces. The EIR states, however, that all proposed projects would apply relevant BMPs to ensure that there are no significant impacts with respect to hydrology and water quality. Order No. R9-2005-0230 requires BMPs and monitoring to ensure such threats are mitigated.

Order No. R9-2005-0230 establishes requirements to mitigate and compensate for the effects of the discharge of fill to waters of the State. Those conditions include creation and enhancement of aquatic habitat and the use of best management practices to protect receiving waters from pollutants in stormwater discharges and the effects of hydromodification.

A. Habitat Creation and Enhancement

Habitat mitigation for effects to waters of the U.S. and non-federal waters of the State associated with the discharge of dredged and fill material has been proposed after consultation with the Regional Board, U.S. Army Corps of Engineers, California Department of Fish and Game, U.S. Fish and Wildlife Service, and City of Carlsbad. The *Conceptual Mitigation and Monitoring Plan for the Development on the Cantarini Ranch and Holly Springs Properties* (RECON, Revised August 15, 2005) proposes the on-site creation of 3.54 acres and enhancement of 8.72 acres of waters of the U.S. (Figure 4).

The goal of the mitigation plan is to provide areas with higher levels of functional wetland areas than were disturbed. Through implementation of the Mitigation Plan, the Discharger would create wetland areas of freshwater marsh, mulefat scrub, southern coast live oak riparian forest, southern willow scrub habitats, and areas of unvegetated stream channels. Several existing areas of wetlands would be also be enhanced.

B. Compliance with NPDES Requirements for the Discharge of Pollutants in Urban Runoff and Stormwater

The Discharger proposes to mitigate the potential threats to beneficial uses from the discharges of urban runoff and stormwater by implementing appropriate construction and post-construction plans that rely on the use of best management practices consistent with NPDES requirements.

During construction the project would be subject to State Water Resources Control Board (State Water Board) Order No. 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, *Waste Discharge Requirements (WDRs) For Discharges Of Storm Water Runoff Associated With Construction Activity*. Requirement B.8 of Order No. R9-2005-0230 calls for compliance with Order No. 99-08-DWQ. In addition, CEQA mitigation provisions require a water quality monitoring program during the during construction of the project, but the EIR does not provide a description of the program. Requirement B.9 and Section A of Tentative Monitoring And Reporting Program No. R9-2005-0230 require the Discharger to conduct a sediment/siltation monitoring program to ensure that the construction activities do not exacerbate the downstream impaired receiving water conditions.

The proposed project may threaten beneficial uses through the discharge of pollutants into tributaries to Agua Hendionda Creek in urban runoff and stormwater (e.g., oil and grease, sediments, heavy metals, pathogens, nutrients, trash, etc.) during project construction and the proposed land use. Plans for post-construction discharges are proposed to be consistent with the NPDES requirements for the City of Carlsbad in Regional Board Order No. R9-2001-01, (NPDES NO. CAS0108758) *Waste Discharge Requirements For Discharges Of Urban Runoff From The Municipal Separate Storm Sewer Systems (MS4s) Draining The Watersheds Of The County Of San Diego, The Incorporated Cities Of San Diego County, And The San Diego Unified Port District*.

To ensure consistency with the MS4 NPDES requirements, a CEQA mitigation measure was incorporated by the City of Carlsbad for the Discharger to implement a proposed Storm Water Management Plan (SWMP) that had been prepared in January 2003⁵. After the CEQA determination the SWMP underwent further review by the City and was revised⁶ (O'Day Consultants, Inc. 2004). The revisions proposed a treatment BMPs plan that would be less effective than the earlier plan and unlikely to be consistent with the MS4 NPDES requirements. Following subsequent discussions between the Regional Board, the City of Carlsbad, and the applicant, further revisions were made to the SWMP (*Storm Water Management Plan for Cantarini Ranch Tentative Map*, O'Day Consultants, Inc. October 31, 2005). Requirement D of Order R9-2005-0230 calls for implementation of the latest revision of the SWMP.

The Discharger now proposes to implement a combination of vegetated swales, catch basin inlet filters, a detention basin, and an infiltration trench in various portions of the properties (Figure 5). The following tables illustrate the proportion of areas served by the proposed stormwater treatment BMPs.

Table 1. Proposed post-construction BMPs at the Cantarini Ranch site

<i>BMP</i>	<i>Treated Lots</i>	<i>Treated Streets</i>
Vegetated Swales	29.8 acres	11.3 acres
Inlet Filters	22.6 acres	5.7 acres
Basin	13 acres	5.5 acres
Infiltration Trench	6.2 acres (multi-family building site)	n/a

⁵ Storm Water Management Plan for Cantarini Tentative Map, January 17, 2003, Buccola Engineering, Inc.

⁶ Storm Water Management Plan for Cantarini Ranch Tentative Map, August 17, 2004, O'Day Consultants, Inc.

Table 2. Proposed post-construction BMPs at the Holly Springs site

<i>BMP</i>	<i>Treated Lots</i>	<i>Treated Streets</i>
Vegetated Swales	18.5 acres	4.7 acres
Inlet Filters	8.4 acres	1.0 acre
Basin	n/a	n/a
Infiltration Trench	n/a	n/a

C. Measures to Mitigate Hydromodification

The California Nonpoint Source Encyclopedia⁷ defines hydromodification as the alteration of stream and river channels, installation of dams and water impoundments, and streambank and shoreline erosion. Management measures identified in the NPS Encyclopedia consist of a suite of plans, practices, technologies, operating methods, or other alternatives that may be used in combination to control nonpoint source (NPS) pollution. The proposed discharge of fill to waters of the State would involve hydromodification and, therefore, has the potential to subsequently create conditions of pollution in receiving waters.

The proposed discharge of fill to waters of the State would result in hydromodification by altering streambeds to create areas for housing, stream crossings and subsurface stormwater conveyance infrastructure. The discharge of fill also has the potential to induce streambank and shoreline erosion because of changes to on-site hydrology and hydraulics, as does the general increase of impervious surfaces related to the proposed land use. The CEQA analysis concluded that since the project site would have a slightly reduced runoff rate under 100-year storm conditions (256.1 cfs upon completion of the proposed project as compared to 256.4 cfs under existing conditions) the project is not anticipated to have an adverse significant impact to existing on site or downstream hydrologic conditions⁸. The CEQA analysis did not assess changes to peak flows during smaller storm events. For instance, the project will increase the discharge (amount of water) in post-development runoff from the 2-year and 10-year storm events by 8% and 5% respectively (*Hydrology Report, Appendix I to the Storm Water Management Plan for Cantarini Ranch, October 2005*).

To mitigate for the effects of planned and potential hydromodification from the smaller storm events, the Discharger has proposed several measures, including the on-site habitat restoration and post-construction stormwater BMPs previously described. The threat of erosion will be mitigated by such factors as allowing vegetation to grow in the channels, limited placement of riprap at outlets, and on-site detention of stormwater. To support the application for waste discharge requirements and section 401 water quality certification, the Discharger prepared unit hydrographs that model the discharge (cfs) and duration of various storm events. These unit

⁷ The NPS Encyclopedia is on-line at <http://www.waterboards.ca.gov/nps/encyclopedia.html>

⁸ Section 4.8 in Final Environmental Impact Report (Final EIR) for the proposed Cantarini/Holly Springs Developments, April 2004.

hydrographs indicate that the peak flows for the 2-year, 5-year, 10-year and 25-year storm events are not increased by the proposed development and that the duration of storm flows during those events are not substantially increased. For instance, under proposed conditions the duration of a 2-year storm event will last approximately 34 minutes longer than under existing conditions. In the absence of established criteria for acceptable changes to the unit hydrograph, the Discharger has proposed several measures that together largely mitigate the threat to downstream erosion from increased impervious areas and elimination of some streambeds. In addition, the project's *Hydrology Report* concludes that the velocities from stormwater discharges leaving the property boundaries are expected to be insufficient to cause excessive erosion.

A recent study by the Southern California Coastal Waters Research Project (SCCWRP)⁹ suggested the following (paraphrased) three general strategies be considered when attempting to manage increases in peak flow: (1) Limit and disconnect impervious areas; (2) Control runoff by closely matching the hydrographs for a range of small storm events; and (3) Provide space for the stream channel to move in response to storm events.

Several measures proposed within the *Storm Water Management Plan for Cantarini Ranch* and the *Conceptual Mitigation and Monitoring Plan for the Development on the Cantarini Ranch and Holly Springs Properties* address the general strategies identified in the SCCWRP report. Table 3 outlines some of the approaches.

Table 3. Proposed measures that attempt to manage hydromodification threats from increases in peak flow at the Cantarini Ranch / Holly Springs project.

<i>General Strategy for Managing Effects of Peak Storm Flows</i>	<i>Proposed Project Examples</i>
Limit & Disconnect Impervious Area	<ul style="list-style-type: none">• Landscape buffers are included adjacent to streets.• Incorporated streets with minimal pavement width (a.k.a. "livable streets") in certain areas.• Rooftop runoff is directed to landscape areas.• Grading footprint avoids large areas of open space.• Vegetated swales are widely used for treating small storm events.

⁹ In response to concerns about how new developments can induce hydromodification, the Southern California Coastal Waters Research Project (SCCWRP) recently conducted a study for the Stormwater Monitoring Coalition that assessed responses of small streams to changed conditions associated with increased impervious cover. This study produced general conclusions regarding the relationship between impervious cover and stream channel form for ephemeral streams in southern California. SCCWRP Technical Report No. 450, April 2005, *Effect Of Increases In Peak Flows And Imperviousness On The Morphology Of Southern California Streams: A Report From The Stormwater Monitoring Coalition* is available on-line at <http://www.sccwrp.org>.

<i>General Strategy for Managing Effects of Peak Storm Flows</i>	<i>Proposed Project Examples</i>
Control Runoff	<ul style="list-style-type: none">• A detention basin serves part of the development.• Energy dissipation is used at storm drain outfalls and below one stream crossing to reduce velocities.• Allowing for vegetation to grow in preserved on-site channels increases the roughness conditions and provides more detention than current conditions.
Stream Channel Movement	<ul style="list-style-type: none">• Large areas of open space preserve many existing stream reaches.• Stream buffers are included that avoid strict confinement of streams in development areas.

D. Summary of Water Quality Standards and Mitigation Measures

The dischargers have proposed adequate mitigation and management measures to compensate for anticipated effects to beneficial uses on the site and downstream. Tentative Order R9-2005-0230 requires the Discharger to implement management measures consistent with the statewide NPDES requirements for stormwater discharges associated with construction activities, the proposed Storm Water Management Plan for post-construction BMPs, and the habitat mitigation and monitoring plan.

V. ANTICIPATED PROJECT CHANGES

The Discharger is currently negotiating several issues with the California Department of Fish and Game and U.S. Fish and Wildlife Service that will affect the final site design of the project. These issues are intended to satisfy the Discharger's request for Equivalency Finding pursuant to Section E-3 of the Carlsbad Habitat Management Plan. The applicant and affected agencies have discussed minor design changes that would not result in increased pollutant loading or threats to water quality. Rather, the potential changes would be designed to increase beneficial uses associated with riparian habitats. Prospective changes not included in the detailed plans reviewed prior to development of the Tentative Order include:

1. Final design of creek crossing structures. The Discharger has committed to meeting the agencies' request for an openness factor of 0.6 (calculated as the height times width divided by the length of the opening), which would provide for adequate wildlife movement opportunities.
2. Increasing riparian buffer width. The Discharger has agreed to implement design changes through the final engineering process that are expected to increase the westerly buffer for the central drainage on the Cantarini Ranch site. This change would most

likely involve moving two streets (streets “C” and “D”) up to 15 feet in order to add 0.39 acre of buffer. The average width of the buffer would increase from 31.3 feet to 43.8 feet along this area.

3. Measures to discourage entry into central drainage. The Discharger has agreed to add features that would discourage entry into the westerly buffer of the central drainage area on the Cantarini Ranch site. Measures would include constructing a black vinyl chain link fence and planting appropriate shrubs (e.g., cactus and thick shrubs).
4. Additional open space dedications. The Discharger has increase by 8.04 acres contribution to the Habitat Mitigation Plan of open space adjacent to the Holly Springs parcel to make the total dedication consistent with expectations of the California Department of Fish and Game and U.S. Fish and Wildlife Service.

The anticipated changes will not result in additional discharges of fill, pollution or threatened pollution, are not expected to trigger recirculation of the Environmental Impact Report, and will increase beneficial uses. As a result, the anticipated changes within final engineering plans are not expected to affect the findings in Order No. R9-2005-0230.

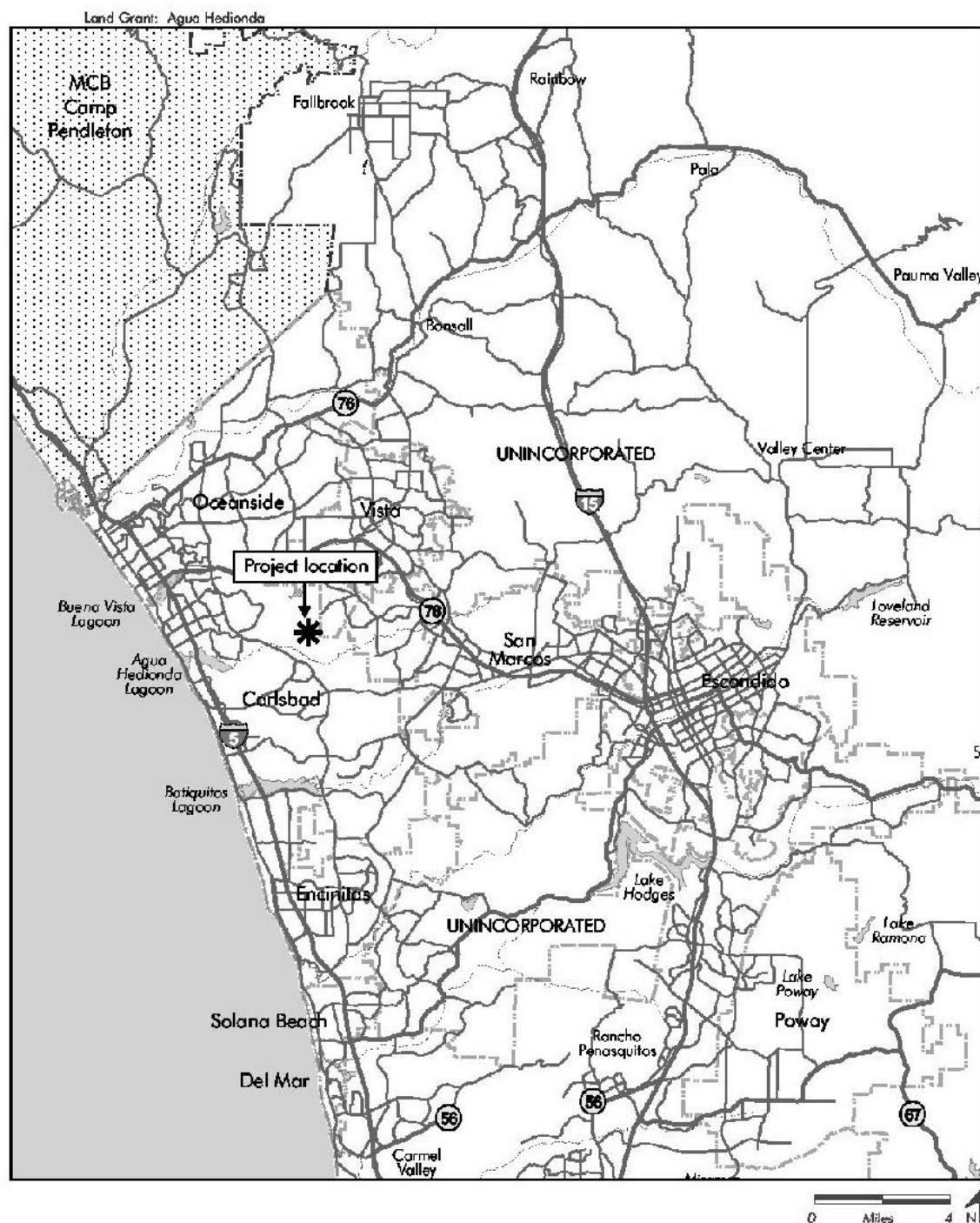
VI. RECOMMENDATION

Adoption of Order No. R9-2005-0230 is recommended. The tentative requirements are satisfactory to compensate for anticipated losses to beneficial uses and to protect existing and preserved beneficial uses on site and downstream.

Figures

1. Regional Location
2. USGS Map
3. Jurisdictional Areas Map
4. Mitigation Area Plan
5. Site Plan and Post-construction BMP Map

**Figure 1
Regional Location**



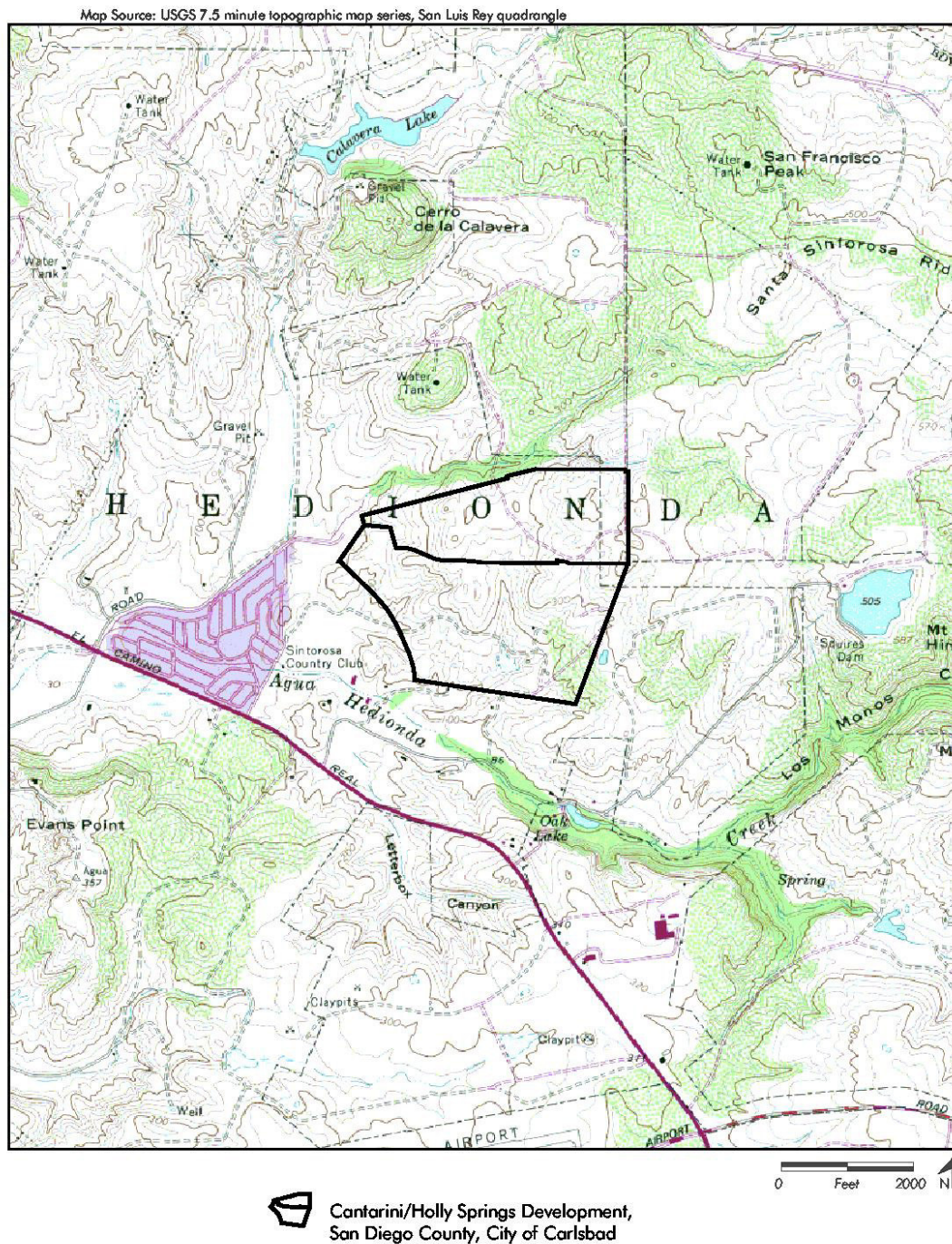
* Cantarini/Holly Springs Development,
San Diego County, City of Carlsbad

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**FIGURE 1
Regional Location**

Figure 2
USGS Map



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FIGURE 2
Project Location on USGS Map

FIGURE 6
USACE Jurisdictional Resources
(revised 11/18/05)

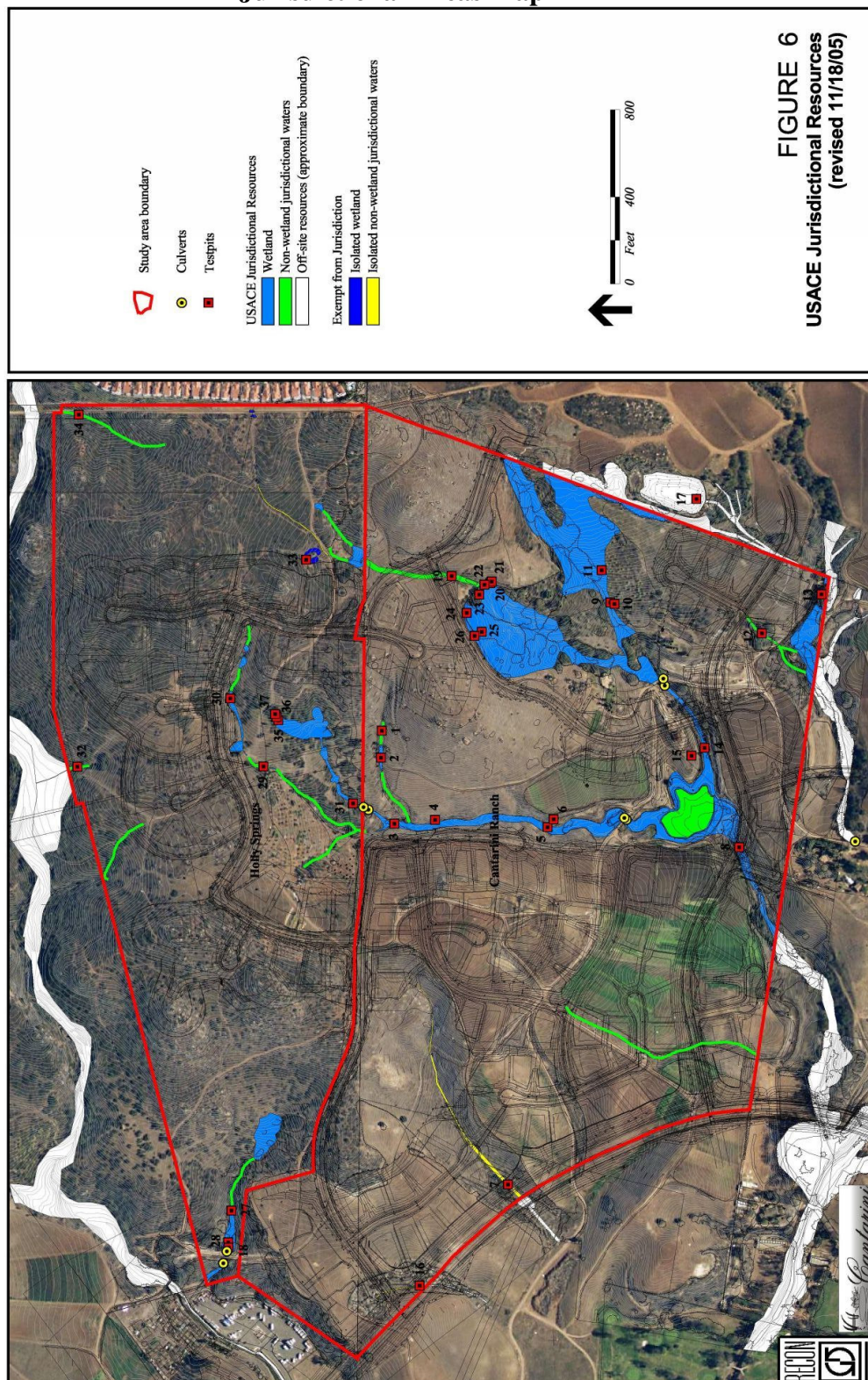


Figure 4
Mitigation Area Plan

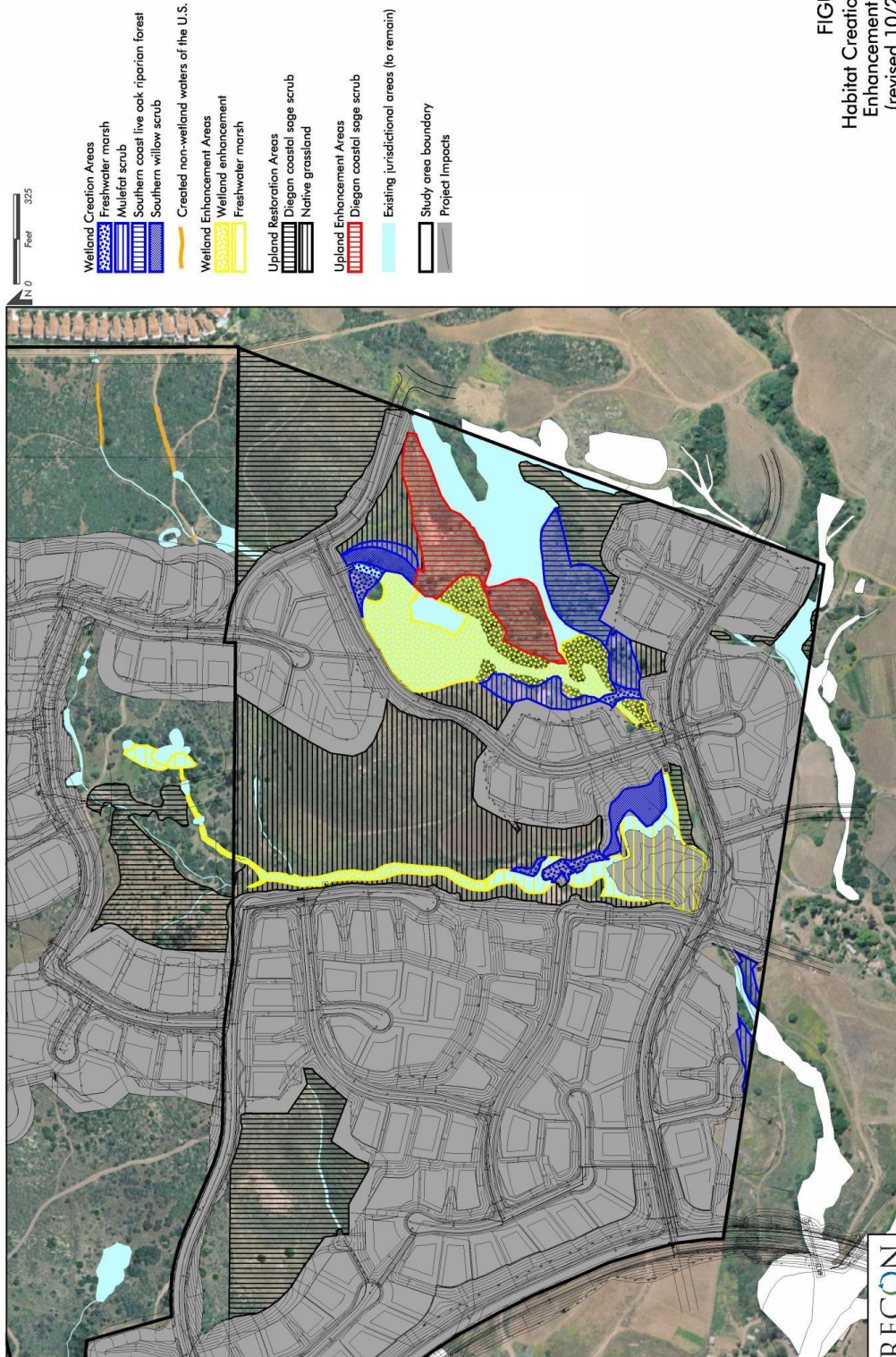


FIGURE 4
Habitat Creation and Enhancement Areas
(revised 10/26/05)

Figure 5
Site Plan and Post-Construction BMPs

